SUPPLEMENTARY MATERIAL

Semantic Search in Psychosis: Modeling Local Exploitation and Global Exploration

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I. Participant Medications

In the schizophrenia group, 81% of individuals were currently taking psychiatric medications. Of those individuals, 82% were taking atypical antipsychotics, 41% typical antipsychotics, 41% antidepressants, 18% benzodiazepines, 12% lithium, 24% anticonvulsants, and 47% were taking other types of psychiatric medications. Of the medicated individuals with schizophrenia, 76% were taking multiple medications. In the schizotypal group, 92% were unmedicated, and 8% were taking antidepressants. No one from the control group was taking psychiatric medication.

II. Secondary Regression Analyses

In our primary regression analyses of VFT performance, search strategies, and cue salience, healthy controls were the reference group; this allowed comparisons between 1) healthy controls and individuals with schizophrenia and 2) healthy controls and individuals with schizotypal personality traits. See Table 2 in the main manuscript for primary regression analysis results. We conducted secondary regression analyses in order to allow specific comparisons between 3) individuals with schizophrenia and individuals with schizotypal personality traits for all of the outcomes and predictors tested in the primary models.

Secondary analyses indicated that the schizophrenia group produced fewer VFT responses ($\beta = -6.42$, $P < .001$) and switched less often ($\beta = -1.51$, $P = .02$) than the schizotypal group. Additionally, the schizophrenia group had greater global cue salience than the schizotypal group ($\beta = 1.05$, $P = .004$), with no significant group differences in local cue salience ($\beta = 0.54$, $P = .112$). Lastly, analyses indicated that the effect of processing speed ($\beta = -0.27$, $P = .035$) but not vocabulary ability ($\beta = 0.04$, $P = .219$) on global cue salience depended on whether an individual had schizophrenia or schizotypal traits (see Figures 2A and 2B in the main manuscript for visualizations of regression model predictions).

III. Interaction Model Prediction Details

We used the *predict* function in R to visualize significant interactions between diagnostic group and 1) vocabulary (WASI Vocabulary) and 2) processing speed (WAIS Digit Symbol) in predicting global cue salience. To make model predictions and visualize the vocabulary interaction, we calculated two measures per diagnostic group of global cue salience with "high" and "low" vocabulary scores, defined as one standard deviation above (62) and below (42) the total sample mean. In these calculations, we held processing speed and VFT score constant at the total sample mean values. To make model predictions and visualize the processing speed interaction, we calculated two measures per diagnostic group of predicted global cue salience with "high" and "low" Digit Symbol scores, defined as one standard deviation above (13) and below (7) the total sample mean. We held vocabulary and VFT score constant at the sample mean values. See Figures 2A and 2B in the main manuscript for model prediction plots.

IV. Supplementary Tables

Supplementary Table S1. Correlations between age and verbal fluency variables (n = 86)

	Correlation	Significance
VFT score	$r = -.26$	$P = .014^{*}$
Global cue salience	$r = .12$	$P = .282$
Local cue salience	$r = .16$	$P = .147$
Switch mean IRT	$\rho = -.04$	$P = .731$
Cluster mean IRT	$\rho = .25$	$P = .019^{*}$

Note: Pearson (r) and Spearman (ρ) correlations for normally and non-normally distributed variables, respectively. *VFT,* verbal fluency task; *IRT,* inter-item response time
$^{*}P < .05$

Supplementary Table S2. Correlations between antipsychotic medication dosage[+] and verbal fluency variables in individuals with schizophrenia (n = 19)

	Correlation	Significance
VFT score	$\rho = -.3$	$P = .22$
Global cue salience	$\rho = .41$	$P = .082$
Local cue salience	$\rho = .24$	$P = .332$
Switch mean IRT	$\rho = -.08$	$P = .736$
Cluster mean IRT	$\rho = .35$	$P = .146$

Note: Spearman (ρ) correlations. *VFT,* verbal fluency task; *IRT,* inter-item response time. Medication dosage was missing for two participants.
[+]Andreasen NC, Pressler M, Nopoulos P, Miller D, Ho BC. Antipsychotic dose equivalents and dose-years: a standardized method for comparing exposure to different drugs. Biol Psychiatry 2010;67:255-262.
$^{*}P < .05$

Supplementary Table S3. Correlations between symptom severity and verbal fluency variables in individuals with schizophrenia (n = 20)

	PANSS positive		PANSS negative	
	Correlation	Significance	Correlation	Significance
VFT score	$r = -.32$	$P = .172$	$r = -.21$	$P = .367$
Global cue salience	$r = .11$	$P = .632$	$r = -.09$	$P = .693$
Local cue salience	$r = -.04$	$P = .868$	$r = -.34$	$P = .138$
Switch mean IRT	$\rho = -.19$	$P = .428$	$\rho = .23$	$P = .333$
Cluster mean IRT	$\rho = .28$	$P = .225$	$\rho = .19$	$P = .415$

Note: Pearson (r) and Spearman (ρ) correlations for normally and non-normally distributed variables, respectively. *PANSS,* Positive and Negative Syndrome Scale; *VFT,* verbal fluency task; *IRT,* inter-item response time. PANSS scores were missing for one participant.
$^{*}P < .05$